population base.[4] The CPUC also concluded that enhanced services need not be tariffed.

The CPUC next modified the Uniform System of Accounts for cellular service in D.90-06-025 to include cost allocation methods for wholesale and retail operations of facilities-based carriers. The CPUC ordered the removal of fixed margins for the resellers, with the implementation of the new accounting system to be addressed in a subsequent phase of the proceeding. The accounting system would allow the CPUC to monitor the industry to see that the facilities-based carriers were not subsidizing their retail outlets (retail outlets had to at least break even), a practice of some carriers, as evidenced in annual reports filed with the CPUC. Given the variance in cost allocation between carriers, the CPUC found it necessary to establish a specific set of guidelines. The CPUC also put into a subsequent phase of the proceeding a proposal to allow the resellers to build a switch to introduce more competition at the wholesale level.

In October 1992, the CPUC addressed the remaining issues in its investigation into the cellular framework (Phase III decision, D.92-10-026). The CPUC adopted a new uniform system of accounts, which standardized the cost allocation methods used by the facilities-based carriers to apportion costs between their wholesale and retail operations.

In the same decision, the CPUC also adopted a proposal for a reseller switch

[4] This calculation differs from that used for landline service, where penetration rates are normally determined based on the number of households instead of the total population.

to substantially increase competition at the wholesale level. In addition, some of the new services proposed by the resellers were not being offered by the facilities-based carriers. In the adopted proposal a reseller would be allowed to build a switch, purchase blocks of numbers from the local exchange company, and interconnect with the interexchange companies', local exchange companies', and facilities-based carriers' switches. When the facilities-based carrier switch received a call with a reseller number, the switch would automatically route the call to the reseller switch to process the call and provide enhanced and other services. To effectuate competition, the reseller switch proposal would require unbundling of the wholesale rates. The bottleneck portion of the facilities-based carriers' facilities (i.e., the cell sites, trunks to the switch, and certain switch functions) would be cost-based with a rate of return; the remaining components of the wholesale rate would be market priced.

Decision 93-05-069 granted the facilities-based carriers a rehearing on the October 1992 decision on the accounting cost standards for allocation of costs between wholesale and retail and the reseller switch proposal. The facilities-based carriers claimed this proposal was inconsistent with the June 1990 Phase II decision. They alleged that unbundling of wholesale rates and cost-based pricing of bottleneck functions were tantamount to cost-of-service regulation, which the CPUC said would not be used for setting rates for the cellular industry. They also asserted that there were no bottleneck functions because there were two cellular companies with separate facilities in each market. The duopolists also protested the costing method of using embedded cost in lieu of incremental cost. The CPUC, however, had given the carriers the option of submitting incremental cost studies, if the industry could agree on a definition of cost. The issues were subsequently consolidated with I. 93-12-007, the investigation into mobile telephone service and wireless communications, discussed below.

In April 1993, the CPUC addressed claims from the facilities-based carriers that cellular rates had not fallen because the carriers did not have the ability to raise rates without CPUC authorization. The CPUC stated in its decision (D. 93-04-058):

> Three years later virtually none of the Commission's expectations [of reducing cellular rates] have been met by industry performance. While many urge that the fatal flaw is the expectation that duopolists will engage in meaningful competition, the industry has a different explanation as to why cellular rates in all segments of the California market have remained at their historic high levels. It is all the Commission's fault! The flexible pricing scheme which permitted carriers to reduce rates up to 10% on one days notice but required a substantiation for rate increases in an advice letter filing has "chilled" the carriers' desire to lower prices. Why? Because of a fear that once a price lowered, the Commission would obstruct a movement back to the old level.

D.93-04-058 established "rate band guidelines" to allow the industry to raise rates up to a maximum ceiling rate or lower rates by any amount on one day notice without Commission approval, as long as the margin between wholesale and retail rates was maintained. The existing tariffed rates would serve as ceiling rates. New optional service plans could be filed with any rates the utility wanted, and these rates would serve as the ceiling rates when the tariff became effective.

As noted in the comments in I.93-12-007, none of the new or existing plans experienced any permanently lowered wholesale or retail rates under the rate band guidelines. Instead, the rate band guidelines were used to offer short-term promotional plans, some as short as one day, or to lower rates only slightly for optional long term plans. The long term plans were contracts which were automatically renewable each year, with stiff penalties for early termination. The penalties were not prorated, but remained the same whether the customer withdrew on the first or last day, and remained in effect when the contract was automatically renewed. The facilities-based carriers in many cases allowed customers to sign up orally, but the customer had to terminate in writing in a short time frame or be automatically renewed by default. Large commissions were paid to agents to enroll new customers on the automatically renewable contract plans.

In April 1994, the CPUC issued D. 94-04-043, which further relaxed and simplified the rate regulatory requirements for cellular carriers. By that decision, the CPUC removed the ten percent maximum reduction for temporary tariffs so the rates could be dropped to any level on one day notice. The decision also allowed the utilities to provide provisional tariffs (new service plans with termination dates) and withdraw optional plans without CPUC approval, assuming proper customer notice requirements were fulfilled. In addition, the decision allowed automatically renewable contract services to remain, providing certain changes were made to the tariffs. These changes included proration of termination penalties over the life of the first year contract, elimination of termination penalties after the first year, maximum three year contracts, customer signatures on contracts with penalties, and customer notice prior to contract renewal.

B. Proposed Regulatory Rules for CMRS

In December 1993, the CPUC opened an investigation to review its policies governing the wireless industry (I.93-12-007). The review was prompted by further experience with the industry, and by market and technological developments, including the potential entry of alternate providers of mobile telephone service. The CPUC stated that it envisioned that at some time in the not too distant future competitive market forces would effectively discipline the wireless industry and allow for the orderly withdrawal of rate regulatory oversight. In the near term, however, the proposed framework would assure continued but substantially streamlined regulatory treatment for new providers of mobile service as well as most cellular resellers.

The CPUC stated in I.93-12-007 that the proposed framework would classify cellular duopolists as dominant carriers, and established a clear vehicle for an orderly phasing down of regulation when effective competition emerges in the market. Comments were sought for the purpose of establishing trigger mechanisms that would automatically reduce regulation of duopolists.

This investigation is currently pending. In addition to the above, the CPUC is considering regulatory alternatives for facilities-based cellular companies within the overall strategy outlined in the rulemaking. These include a price cap at current rates, a cost-based price cap, and relaxed regulation. Non-dominant carriers would be subject to minimal regulation and registration requirements. The CPUC believes that creating a relaxed regulatory environment for new entrants and providing protection from anti-competitive practices by dominant carriers will accelerate investment and deployment of new technologies in California.

Also included in I.93-12-007 are two additional proposed measures governing dominant providers. One is the unbundling of radio links which would minimize the scope of the market bottleneck created by the duopoly structure for cellular licensing. The other measure outlines standards which, if met, would allow cellular licensees to be classified as non-dominant providers.

In February 1994, the CPUC opened a related rulemaking proceeding to establish a simplified registration process for non-dominant telecommunications firms, focusing on regulation of non-dominant telephone corporations which do not possess the ability to harm consumers through the exercise of market power (R.94-02-003). Registration would require the corporation to submit only a one-page form describing the business name, address and telephone number of the corporation, telephone number of consumer representative for handling complaints, names of principle officers of the corporation, and possibly the posting of a bond, to begin operations.[5]

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[5] To further streamline the regulation of the wireless industry, earlier this year the CPUC supported legislation allowing simple registration for non-dominant carriers, thereby promoting competitive entry to the cellular markets. The major

The CPUC also proposes to eliminate regulation of rates and entry and to eliminate tariffs for non-dominant carriers. At the same time, the CPUC proposes vigorous consumer protection safeguards against fraud and abuse when they occur. Consumer safeguards would include disclosure requirements to ensure that consumers are informed about the services to which they subscribe, guidelines for marketing, and procedures for customer redress. Non-dominant carriers for CMRS would include cellular resellers, RTUs, PCS, and SMRs (e.g., Nextel).

On August 3, 1994, the CPUC issued an interim decision in I.93-12-007 (D.94-08-022, see Appendix N). In that decision, based on record evidence, the CPUC found that the market for cellular services is not currently competitive in California. As an interim measure to stimulate competition until new market entrants emerge, the CPUC ordered the unbundling of access charges from cellular service wholesale rates. Such unbundling gives a switch-based reseller the option of obtaining interconnection directly from the local exchange carrier, and a block of telephone numbers directly from the number administrator.

III. COMPETITIVENESS OF THE CELLULAR INDUSTRY

A. Methodology for Assessing Competitiveness

In assessing the competitiveness of the cellular market, the CPUC has

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carriers, however, successfully persuaded legislators to defeat this measure, to the detriment of potential cellular competitors. Los Angeles Cellular Telephone Company and Bell South actively worked to defeat the bill. AirTouch and AT&T also opposed the bill. (AB 3767, Andal) followed the U.S. Department of Justice Merger Guidelines (DOJ Guidelines) commonly used for testing market power in federal antitrust analysis. As prescribed by the DOJ Guidelines, the market definition must distinguish the relevant product or service and any close substitutes. The definition must also consider the changes in the geographic extent of the market over time.

Under the DOJ Guidelines, one must also consider the geographic extent of the market. A geographic market typically is defined as the smallest area in which an attempt by a firm to raise prices would be profitable. If customers respond to a price increase by purchasing the good or service in another location, then the new location is included in the geographic market. The analysis is repeated until it is unlikely that price changes will further change the market size.

Once a definition of the market and its geographic extent is determined, the DOJ Guidelines consider what would happen if a profit-maximizing firm tried to raise its price by a "small but significant and nontransitory" amount. One must determine whether any firm(s) within the mobile services market possess sufficient market power to charge prices above competitive levels.

As to measures of market power, there are a variety of relevant criteria. In the restructuring of the regulatory framework for the interLATA telephone industry, the CPUC solicited information as to how to assess the market power held by AT&T Communications of California. The indicators the CPUC considered in that proceeding included: (1) market share; (2) earnings; (3) ease of market entry and exit; (4) facilities ownership; and (5) price changes. Those same considerations are relevant in the present inquiry of the mobile services market.

B. Definition of Relevant Market

CMRS, as defined by the FCC in its Second Report and Order, includes cellular carriers, PCS, SMR, private paging, and satellite services. CMRS, however, is not a single market. Rather, CMRS comprises numerous classes of wireless service providers offering various services subject to varying degrees of competition. Accordingly, for purposes of determining the level of competition, the CPUC has treated each service under the CMRS classification as a separate market. The FCC agrees with this view, acknowledging in its Second Report and Order that, "for purposes of evaluating the level of competition in the CMRS market, the record does not support a finding that all services be treated as a single market."[6]

The potential for close substitutes for cellular service must be considered in determining how broadly to define the market. This approach is consistent with the DOJ Guidelines and the comments of parties before the CPUC.[7] The DOJ Guidelines describe substitutability as: (1) reasonable interchangeability of use to which the services can be put; and (2) the extent to which consumer preference

[6] Second Report and Order at ¶ 136.

[7] I.93-12-007.

shifts freely between the services, known as cross-elasticity of demand. The main dispute concerning market definition is whether emerging technologies such as PCS and ESMR are close substitutes for cellular service.

Depending on the user's needs and preferences, potential substitutes for cellular service may exist for certain limited purposes or in limited geographical regions. For example, a paging service could be used in conjunction with a roadside pay phone as a partial substitute for a cellular car phone. But such a substitute lacks the convenience features of cellular. Although ostensibly cellular service may in limited instances be substitutable for landline telephone, pagers, or two-way mobile dispatch service, many analysts suggest these services are not generally close substitutes for cellular service, as reported by the U.S. General Accounting Office.[8] Moreover, based upon the current deployment status of alternative PCS and ESMR technologies, as discussed below, the CPUC concludes that most consumers still lack viable substitutes for cellular service on a widespread basis. Accordingly, the CPUC concludes that cellular service should be viewed as a separate market from other wireless telecommunications, at least for the present and near-term future.

Within the cellular market there are several submarkets with separate geographical boundaries, customer demand characteristics, and vendor technology capabilities. The geographic boundaries of each market are determined by the FCC

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[8] U.S. General Accounting Office, Concerns About Competition In The Cellular Telephone Industry, July 1992. ("GAO Report")

license. The FCC has designated specific MSAs and RSAs within which licensees must limit their marketing. Each MSA and RSA constitutes a separate market with differing demographic and geographic characteristics. Because of the large number of MSAs and RSAs within California, it would be time-consuming and onerous to evaluate each in great detail. Instead, the CPUC generally describes the various types of markets for mobile service communications within California.

C. Market Power of Cellular Providers

1. Structural Barriers to Entry and Access to Bottleneck Facilities

In 1981, the FCC opened up the cellular market for competition at the retail level -- service to end users-- and required cellular carriers to sell their service to resellers on a non-discriminatory basis.[9] Resellers, who buy cellular services at wholesale rates from the facilities-based carriers, have not enhanced competition at the retail level as desired. This is mainly because resellers do not have access to the cellular spectrum and do not own or operate cellular switches. Consequently, resellers have no control over the essential underlying costs of producing cellular service. As the CPUC described in I.93-12-007, the FCC's licensing of only two facilities-based cellular carriers limits competition because of the exclusive control of the radio spectrum which creates a "transmission

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[9] In the Matter of an Inquiry Into the Use of the Bands 825-845 Mhz and 870-890 Mhz for Cellular Communications Systems; and Amendment of Parts 2 and 22 of the Commission's Rules Relative to Cellular Communications Systems, Report and Order, CC Dkt. No. 79-318, 86 FCC 2d 469 (1981).

bottleneck." The CPUC considers a service to be a bottleneck if (1) an essential facility, product or service is controlled by one or two firms; (2) because of economic and technological limitations, another firm cannot duplicate the service or product; and (3) the service or product is essential to compete successfully in the market.

Based on this definition, access to radio spectrum and switching facilities are deemed bottleneck functions in the cellular market. Facilities-based carriers' control of these bottleneck functions is the primary cause of resellers' diminished contributions in the cellular market.

As a result, the participation of resellers in the cellular market at the retail level has not forced the cellular wholesalers to compete at the wholesale level, nor has it deterred the duopolists from exercising market power and pricing cellular service above competitive levels. The resellers' loss of market share is caused by several factors, including their inability to control the majority of their costs, which are determined by the duopolists who control the bottleneck facilities.

In California the CPUC recognized the dilemma set by the establishment of a duopoly market and devised regulatory policies to introduce some level of indirect competition by establishing wholesale and retail tariffs for resellers and individual subscribers, respectively. These actions have, to some extent, created choices for subscribers and have aided to control price increases. Such policies also may have enhanced distribution channels, resulting in California having the largest market share of cellular phone users in the U.S. However, such policies have not encouraged price reductions as had been anticipated, due to the duopolists' significant market power vis a vis resellers.

On July 25, 1994, the U.S. Department of Justice filed a Memorandum in Response to the Bell Companies' Motions for Generic Wireless Waivers with the United States District Court for the District of Columbia Circuit, Civil Action No. 82-0192, in which it similarly concluded that the "[c]ellular duopolists plainly have market power in cellular service," and "cellular exchange service markets are not competitive today" because of the creation of duopolies with near absolute barriers to entry. Memorandum at 13-14. Among other things, the Department cited several internal documents submitted by the Bell Operating Companies themselves to the Department that "demonstrate in the BOC's view cellular is comfortably noncompetitive." Memorandum at 15-16 (emphasis in original). Pacific Telesis in particular observed that the cellular industry had unusually attractive structural characteristics as a government-mandated duopoly providing very high barriers to entry, leaving the duopolists "essentially unregulated with regard to rates and rate of return." Memorandum at 16.

2. Interlocking Ownership Interests

Interlocking ownership interests among the duopolists are another indication of the control cellular carriers exercise over the market and why competition cannot flourish at this time in the absence of regulatory oversight. In California the cellular markets are dominated by a handful of providers who are partners in one market and act as competitors in another. These interlocking relationships weaken competition by diminishing the incentive to compete and maximizing the incentive to increase profit. The pattern is widespread in the California cellular market. A total of 16 MSAs, including the major markets Los Angeles and San Francisco, and 4 RSAs are affected by interlocking directorates. For example, AirTouch Communications ("AirTouch") and Contel are partners in 12 MSAs and competitors in four MSAs. AirTouch and McCaw Communications ("McCaw") are partners in four MSAs, including the San Francisco and Los Angeles MSAs, and competitors in 10 MSAs and one RSA. AirTouch and Centennial are partners in 6 MSAs and 3 RSAs, and competitors in 4 MSAs. AirTouch and US Cellular are partners in 5 MSAs and competitors in one RSA. Contel and US Cellular are partners in 5 MSAs and one RSA, and competitors in one RSA. These interlocking ownership relationships are explained in greater detail in Appendix B.

AirTouch and US West recently announced plans to merge domestic cellular operations, creating the third-largest wireless communications company in the nation, with franchise areas covering 53 million people, mainly in the West. While the two companies will remain independent initially, operating under a joint management company, they intend to establish a joint venture to bid on PCS licenses.[10] Currently, they are competitors in the San Diego MSA.

The FCC itself has shown concern about interlocking ownerships and their

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[10] "AirTouch, US West to Merge Domestic Cellular Operations," Los Angeles Times, July 26, 1994, p. D1.

potentially adverse effect on the public interest, stating in its Second Report and Order:

> We have noted California's concerns about regional partnerships involving cellular licensees which are competitors in some markets. These arrangements might result in the sharing of pricing information in joint marketing efforts or they might blunt incentives to compete. These arrangements will be monitored by the Commission and are subject to scrutiny under federal antitrust laws.[11]

3. Market Share

A further indication that there is no significant competition at the wholesale level is seen in the relatively stable market shares of facilities-based carriers for their wholesale operation, including sales to resellers over the last five years. For example, in the San Francisco Bay Area MSA, Bay Area Cellular Telephone Company's ("BACTC") market share for wholesale in 1989 was percent. In 1993, BACTC's wholesale market share was percent. GTE Mobilenet ("GTE"), in the same MSA, had a percent share in 1989, which became percent in 1993. For both companies the change in market share was less than 5 percent over five years. Similarly, market shares in the Sacramento MSA, San Diego MSA, and Los Angeles MSA exhibit relatively stable market share, implying equilibrium in market share for the duopolists in each of the markets studied. For the same study period of 1989 through 1993, resellers' market share declined significantly. (See Appendix E, pp. E-6 - E-8.)

[11] FCC 94-31, ¶ 138.

At the retail level, while resellers made some progress in increasing their market share of cellular service in the late 1980s, their market share has been dwindling in the major California markets since then. In the Los Angeles and the San Francisco Bay Area MSAs, the two busiest MSAs in California and the nation, the resellers' market share has on the average declined to half of what it was five years ago. At the end of 1993, resellers in the two markets combined had a little less than percent market share, down from percent in 1989. Resellers lost market share at the rate of percent each year, while the cellular carriers garnered greater shares of the market during the same period.

In the Los Angeles MSA, the resellers' market share went down by half from percent in 1989 to percent in 1993. In the San Francisco Bay Area, the resellers' market share declined from percent in 1989 to percent in 1993. In Sacramento, where resellers never had a strong base, their market share declined from percent in 1989 to less than percent in 1993. In San Diego, resellers' market share in 1993 dropped to nearly half of the percent they had in 1989.[12] Similar declines are observed in all California markets. If these trends continue, competition from resellers may disappear altogether, leaving wholesale carriers as the sole providers in given markets.

Recently, in the face of potential competition from new entrants, cellular carriers have begun trying to lock up market share by shifting existing, as well as new, customers to contractual plans which purportedly offer better deals than the

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[12] See Appendix E.

regular basic plans. These contract plans typically offer a certain allotted number of minutes and require the customer to commit to service for a period of one or more years. Contracts carry heavy penalties for termination and are more restrictive than month-to-month basic plans, which tend to be higher priced.

4. Current and Future Market Concentration Ratios

The structure of a market, and consequently the level of competition, is determined by the characteristics of the sellers and buyers in that market. Chief among these characteristics is the number of producers in the market. In the extreme, there is only one producer of a service and as a result there is no competition. The next step is where only two producers exist, a duopoly market.

The market concentration ratio measures how much cumulative market share is held by the top firms in markets where there are several suppliers. The larger the market share held by the top several firms, the more concentrated, and less competitive, the market. In a market where there are several suppliers, each supplier's market share can determine whether it can unilaterally or in concert with another supplier dominate pricing and hence affect competition.

Currently at the wholesale level in the cellular market there are two suppliers who together control 100 percent of the market. We will show how the duopoly companies share the market in their MSAs. And because cellular carriers have in the past claimed that there is competition at the retail level due to the presence of resellers in the market, we demonstrate using concentration ratios how the market has behaved in the past several years.

Our findings show that the Los Angeles market is more concentrated at the retail level in 1993 than it was in 1989. In 1989, the duopolies controlled percent of the market. In 1991, the duopolies controlled percent of the market. In 1993, the market share of the two duopolies had jumped to percent.

In the San Francisco MSA, the duopolists controlled percent of the market in 1989. In 1991, their share grew to percent. In 1993, the combined market share for the carriers reached percent.

The concentration of market share is observed in all the areas studied. In the San Diego MSA, the market share of the two facilities-based carriers increased from percent in 1989 to percent in 1993.[13]

The competitiveness of the cellular industry can also be determined using the Herfindahl Index ("H Index"). The H Index is determined by the summation of the squares of the market share of each competitor, and is expressed in mathematical form as:

$$H=\sum_{i=1}^{n} S^{2}{}_{i}$$

where "s" is the market share of the firm "i". If there is a single firm in the industry -- a monopoly -- then the H index will have a value of 1.0. The greater

[13] See Appendix E, p. E-6.

the number of firms in the market, the lower the value of the H Index. Similarly, given a fixed number of firms, the H index is higher if market share is unequally distributed. The lower the H value, the more competitive the industry, and vice versa.

The H Index in this analysis indicates the degree of competitiveness between the duopoly carriers as one group and resellers as the second group. This approach is necessary because our goal in this analysis is to determine the competitiveness of resellers with respect to the duopoly carriers. The underlying assumption is that there is no significant competition between the duopolists and that they together dominate the market. The assumption is supported in part by the comparable market share between the duopolists, as shown above.

In 1989, the H Index for San Diego market was We used 1989 as the base year and compared the level of competitiveness in the following years. If the index for any year was less than the 1989 number, then the market in that year was relatively more competitive than it was in 1989, and vice versa.

Our findings show a steady increase in the value of the index, implying less competition in subsequent years. In 1993, the index was , getting closer to one. The H values for other markets were similar to those found for the San Diego MSA. The Los Angeles market had an H value of in 1989. The value for 1993 was The San Francisco market started at in 1989. The value in 1993 was showing the market had become less competitive. In the Sacramento MSA, where there are only a few resellers, the H value went up from a value of in 1989 to a value of in 1993, indicating the duopolists are gradually eliminating any competition that might have existed in the retail market.

D. Cellular Pricing

The CPUC examined the prices offered by facilities-based cellular carriers to determine if price levels and price changes were consistent with what we would expect in a competitive market. In this analysis of prices, the CPUC recognizes the proliferation in recent years of various promotional contract plans which purport to offer savings to targeted customer segments. These plans usually require eligible customers to accept various restrictions and conditions, as contrasted with traditional "basic service" plans, which may entail a higher nominal rate but which do not require the restrictions of the discounted plans.

We examined whether cellular rates have changed and whether rate changes by the duopolists are independent of each other. The CPUC has found the following:

- The average rate for the basic plan has remained unchanged in three markets, including California's largest market; increased in one market; and experienced decreases of less than percent in the four other markets studied.
- Facilities-based carriers' basic retail rates are nearly identical in Los Angeles and Santa Barbara and vary by less than percent in all other markets with the exception of Sacramento.

Stagnant or slowly declining cellular rates must be evaluated in the context of lower costs. In real terms, the rates for basic plans in all markets have declined by an average of percent, in nominal terms by percent. (See Appendix I)

Operating expenses per subscriber have fallen by percent in real terms from 1989 to 1993.[14] (See Appendix H) In addition, capital investment per cellular subscriber declined from to between June 1988 and June 1993.[15] This decline in operating and capital costs is expected in a young, growing industry that is gaining operational experience and possibly exploiting scale economies. Unfortunately, this decline in costs has not been accompanied by a commensurate decline in rates. In California the rate of growth has been on the average percent for the major markets.

1. Method For Pricing Analysis

To examine pricing trends in the cellular market, the CPUC analyzed data on all pricing plans offered by the facilities based-carriers in the top five MSAs and two small RSAs for each year from 1989 through 1993.[16]

Generally, California cellular carriers offer a number of retail plans that differ

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[14] For the remainder of this petition we will repeat prices in nominal terms for two reasons: (1) we are uncertain which inflation rate is appropriate, and (2) we expect productivity to be increasing, as it has been in other telecommunications industries. In most other telecommunications markets, increases in productivity and competition have led to real price reductions. For example, the telecommunications Consumer Price Index ("CPI") has increased by 4.6 percent, while the general CPI has increased by 14.2 percent.

[15] Cellular Telephone Industry Association, Mid-Year Data Survey, October, 1993, as cited in Attachment 3, footnote 4 of Cellular Service, Inc.'s Opening Comments in the CPUC's I. 93-12-007.

[16] The areas studied are Los Angeles MSA, San Francisco-San Jose-Oakland MSA, Sacramento MSA, San Diego MSA, Santa Barbara MSA, Fresno MSA, California 2 RSA, and California 7 RSA.

in the structure of charges, terms and conditions. We examined two types of plans: basic rate plans and discount plans. Typically, basic plans are composed of two principal recurring charges: airtime and access. Unlike basic plans, discount plans often involve contracts with time commitments of one, two or three years. Contract discount plans often charge a flat monthly fee for a set number of minutes. Per minute usage fees are assessed to any airtime in excess of the monthly allotment. Typically, cellular carriers charge a "peak rate" during high demand time for the basic plan and a lower "off-peak" rate during low demand time. To take maximum advantage of the discount plans, subscribers must match their usage with an appropriate discount plan; otherwise they could end up paying higher prices than they would under the basic plans. If customers discontinue service prior to the end of the term, they are usually charged a termination fee. In addition to contract discount plans, there are also corporate discount plans, which give lower rates if multiple units are ordered by the same account, and non-contractual discount plans.

The growing prevalence of discount plans makes comparing cellular prices over time difficult. While it is important to take contract discount plans into account when analyzing the prices cellular consumers pay, it is also important to recognize the costs associated with contract discount plans. Direct comparison of rates between discount plans and basic plans is not valid, because discount plans have a number of restrictions and conditions which reduce their value. There are significant costs associated with joining a contract discount plan: the customer loses flexibility, is at risk for a termination charge and may be denied access to new technologies as they come on line. These costs are difficult to quantify, but should be kept in mind when evaluating discount plan rates.

The CPUC compared and analyzed the retail rates (i.e., rates charged to end users), wholesale rates (i.e., rates charged to resellers) for "basic" service, and all other "discount" and contractual plans offered by wholesale carriers in each of the study markets. Our study established three hypothetical use patterns -- 60 minutes, 120 minutes and 480 minutes per month -- representing low, medium and high volume cellular service use patterns, and assumed that 80 percent of total minutes of use occur during peak hours and the remaining 20 percent occur during off-peak hours. The three call volume standard -- 60, 120, and 480 minutes per month -- are the same as those used by Cellular Carriers Association of California.[17] We requested data on usage per customer by service plan; however, carriers claimed that the distribution patterns were unavailable. The blended rate we calculated does not include toll charges assessed by the local exchange and interexchange carriers used to complete cellular calls.[18]

To compare discount plans between carriers in a market and over time, we examined the best rates available to 60, 120 and 480 minute per month users. We requested data on usage per customer by service plan; however, carriers

[17]Comments of the Cellular Carriers Association of California to CPUC OII 93-007-12, February 25, 1994.

[18]Toll charges, however, are not included on calls made in the subscriber's "home calling area."

claimed that the distribution patterns were unavailable. These most favorable discount rates are the lowest available blended rate for each of these customers. These rates do not take into account the risk of a termination charge, the length of the contract or other contract conditions. Early in the study horizon, prior to the introduction of most discount plans, the best rate is the basic rate. Even in the most recent period the basic rate is sometimes the lowest rate.

2. Basic Rate and Discount Rates

a. Maximum Regulatory Flexibility for Cellular Duopolists Did Not Lead To Lower Rates

While similar prices may be observed in competitive markets, one cannot assume that similar prices always indicate a competitive market. Particularly in an industry like cellular, with high barriers to entry, high demand, and declining costs, similarity of prices between the duopolists raises questions. The nominal rates for basic plans for both carriers in three of the California markets studied have not changed for the last five years.

In California the original rates - largely, basic rates for most carriers - were based on "what market research information indicated would be an appropriate price to charge rather than on cost."[19] Because the cellular market was relatively new at the time, the CPUC adopted a hands-off approach to rate regulation, hoping the rates would come down in time as economies of scale occurred and the cost of

[19] See CPUC D.84-04-014, Findings and Conclusions.

doing business declined. Unfortunately, this has not occurred.

A recent Wall Street Journal article confirms that prices are not coming down as costs decline. Specifically, the article points out that over the last ten years, about $13.9 billion was spent building the cellular system, while $36.9 billion in revenue was earned. In 1993, five million new subscribers signed on. Based on industry data showing the average cost of a cell site, the cost of adding these customers should have been $4.5 billion. The industry actually spent only $2.6 billion, retaining the additional revenues for itself.[20]

In April 1993, the CPUC established guidelines that gave carriers who lowered rates the flexibility to raise rates to previous levels on one day's notice. No justification was needed to return to previous levels. Existing rate levels were to serve as a cap absent a justification for increases. With this added rate flexibility in place, the CPUC observed that it would quickly be known whether cellular duopolists would, in fact, lower their rates.

The result of this flexibility has been disappointing. Rates have not come down as much as expected since the CPUC issued the decision granting flexibility. A little over one year later, an industry observer notes there has not been a single significant sustained rate reduction in any of the markets that lasted for more than three consecutive months.[21]

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[20]Cellular Phone Rates Spark Static From Users," Wall Street Journal, May 5, 1994.

[21]Reply comments of Cellular Services, Inc. in I.93-12-007, and tariff filings by AirTouch, LACTC, and US West.